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ABSTRACT

This report describes a program for improving reading comprehension through cooperative learning. The targeted population consisted of elementary and middle school students in growing middle class communities, located in northern Illinois. The problems of reading comprehension in content areas were documented through teacher observation and student test scores. Analysis of probable cause data revealed that students showed a needed improvement in reading comprehension related to retention of vocabulary. Faculty reported student difficulties in transfer of reading skills to content area subjects. This may have been due to a lack of vocabulary mastery. Reviews of instructional strategies demonstrated a need for improving teaching techniques. A review of solution strategies suggested by knowledgeable others, in addition to an analysis of the problem setting, demonstrated a need for the selection of an appropriate intervention: a cooperative learning technique designed to improve reading comprehension skills while mastering vocabulary. The intervention was implemented for a period of 10 weeks. During that time teachers repeatedly observed a cooperative atmosphere in their classrooms. Post-intervention data indicated improvement in mastery of vocabulary skills and reading comprehension using the cooperative learning method of teaching. Educators, students, and parents were pleased with the success of the intervention. Appendixes contain permission forms, parent and student surveys, a sample pre-test, an observation checklist, a sample post-test, and post-intervention parent and student surveys. (Contains 38 references, 2 tables, and 3 figures.)
(Author/RS)

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IMPROVING READING COMPREHENSION THROUGH COOPERATIVE LEARNING

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An Action Research Project Submitted to the Graduate Faculty of the
School of Education in Partial Fulfillment of the
Requirements for the Degree of Master of Arts in Teaching and Leadership

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ABSTRACT

This report describes a program for improving reading comprehension through cooperative learning. The targeted population consisted of elementary and middle school students in growing middle class communities, located in northern Illinois. The problems of reading comprehension in content areas were documented through teacher observation and student test scores.

Analysis of probable cause data revealed that students showed a needed improvement in reading comprehension related to retention of vocabulary. Faculty reported student difficulties in transfer of reading skills to content area subjects. This may have been due to a lack of vocabulary mastery. Reviews of instructional strategies demonstrated a need for improving teaching techniques.

A review of solution strategies suggested by knowledgeable others, in addition to an analysis of the problem setting, demonstrated a need for the selection of an appropriate intervention: a cooperative learning technique designed to improve reading comprehension skills while mastering vocabulary.

The intervention was implemented for a period of ten weeks. During that time teachers repeatedly observed a cooperative atmosphere in their classrooms. Post intervention data indicated improvement in mastery of vocabulary skills and reading comprehension using the cooperative learning method of teaching. Educators, students, and parents were pleased with the success of the intervention.

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CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement of the Problem

Students who are unable to comprehend content area text present an educational challenge. Success in content area reading is an essential aspect of student progress. The students of the targeted fourth grade elementary school and seventh grade middle school demonstrate a need for techniques to better comprehend information covered in the content areas. Evidence of the existence of this problem includes teacher observations, students' attitudes and participation, results from subject matter tests and state standards achievement tests, district and teacher generated assessments of student academic performance, and student journals.

Immediate Problem Context

This action research was conducted in two suburban communities, located near a large midwestern city. The two settings will be described individually as Site A and Site B. Site A and Site B belong to two different school districts.

Site A

Site A is a five year old school, located in a residential section the southwestern area of the school district. It houses students in kindergarten through grade five. There is a

total population of 601 students in Site A. The distribution of racial/ethnic groups is 82.4% Caucasian, 5.3% African-American, 3.8% Hispanic, 8.5% Asian/Pacific Islander, and 0% Native American. The student body has a low-income enrollment of 0%. Just under 2% of the student body is limited-English proficient. There is no chronic truancy rate in Site A. The mobility rate of students is 7.0%. Class size average at Site A is 22 students. The attendance rate of students in this site is 96.3%. Instructional expenditure per student is \$3,815 (Illinois State Report Card, 2002).

The 32 teachers employed at Site A are of the following backgrounds: 97% Caucasian, 1.4% African-American, 0.4% Hispanic, 0.9% Asian/Pacific Islander, and 0.1% Native American. The 54 teachers in this school have an average teaching experience of 8.5 years. 56.1% are teachers that hold a bachelor's degree and 43.9% have a master's degree or beyond. Of the teachers in Site A, 19.6% are male and 80.4% are female. The average teachers' salary is currently \$41,608, while the average administrator's salaries average \$94,363 (Illinois State Report Card, 2002).

The school offers a Reading Recovery Program for identified students to work on necessary reading skills in a small group setting. Identified gifted students are enrolled in Project Arrow, a 200 minutes per week program for students to work with a separate teacher outside of the classroom. Site A offers an enrichment program for students to expand their thinking creatively. Students who are identified with high math test scores attend an accelerated math class. Site A is an inclusion school. Inclusion students receive help from a special education teacher and an instructional assistant while participating in the traditional classroom. The school provides a basal reading and

guided reading program, the 6+1 writing program, and math, science, and social studies programs. A rotation schedule allows time for music, physical education, library science and computer classes. The school band and chorus meet daily, both before and after school to rehearse.

Site B

Site B is a suburban middle school, comprised of 280 students ranging from grades five through eight. The school is located in a residential section in the northwestern part of the school district and is home to the district office. The student body is diversified, comprising five ethnic groups. Percentages show that there are 84.6% Caucasian, 2.1% African American, 5.4% Hispanic, 7.5% Asian/Pacific Islander, and 0.4% Native American students presently enrolled in the school. Of these students 6.4% come from low-income families. The school has a high attendance rate of 96%. There is a mobility rate of 18.9%. Class size average throughout the district is 20.3, but slightly higher in the middle school. Instructional expenditure per child is \$7,437 (Illinois State Report Card, 2002).

The average teaching experience in the school is 13.9 years. Of the 28 teachers, 58.8% have received master's degrees or above. All of the teachers working in the school are Caucasian, 17.4% male and 82.6% female. The average teachers' salary is currently \$58,830, while the average administrator's salaries average \$92,011 (Illinois State Report Card, 2002).

Fifth and sixth grade classes are self-contained. The seventh and eighth grades work independently from the fifth and sixth grades, and students move from class to

class for each subject area. The school provides a literature based reading program, the Accelerated Reading program, a formal writing program, math, science, social studies, and physical education. A library, media center, and computer lab are in continual use by students and faculty throughout the school day. The school has both a band and an orchestra program. A quarterly rotating schedule allows students' schedules to include music, art, computer training, drama, foreign language, and life skills. Special needs students are included in most subject areas and leave for individualized instruction designed specifically for their needs. Four special needs teachers, many instructional aides, and a support staff work together to help meet the needs of students who have various learning and behavior disabilities. Outside of the regular school schedule, tutoring is available for students needing extra help in one or more subject areas. An extended learning program has been designed for students gifted in the areas of general intelligence, creative thinking, visual and performing arts, academic, leadership, and psychomotor abilities.

The school also has a specially designed program for sight-impaired students including children who travel from different areas outside of the community. Many of the sight-impaired students are mainstreamed, spending much of the day in regular core subject classes, where special accommodations are made for their specific needs. Books in Braille, magnifying instruments, enlargement of printed materials, and portable BrailleMate computers for taking notes are provided. The county subsidizes the program, which includes a staff of two teachers and several aides.

The building is well maintained. Several years ago a lift was installed in the middle school to accommodate wheel chairs and efficiently move students through the two-story building. One disabled student currently utilizes the lift.

The Surrounding Community

Site A

Site A is located in a large western suburban community. There are over 15 elementary schools, four middle schools, and four high schools in the district. A total of 22,606 students attend the district schools with a total faculty of 1,515. The racial/ethnic distribution of the district faculty is similar to that of Site A.

The school is located in one of the fastest growing suburbs in the area. This community has managed to maintain its historical landmarks and old parts of town while building many new developments. The community has grown into a very popular place to raise children.

The town originated more than 170 years ago and has grown into a community of 130,000 residents. People of many cultures reside in the community, but the area make-up is predominantly Caucasian. The median family income in Site A is \$86,000 (U.S. Census Bureau, 2000). Residential housing values average \$200,716. Site A has many attractive aspects for families. It offers an excellent library system and strong school systems. Besides the numerous park facilities offering fitness classes for all ages, many youth activities, and field trips for senior citizens, there are several hiking trails, golf courses, and forest preserves. Many residents use the metropolitan rail system which has two different station locations in Site A. Stores, fitness centers,

hospitals, and many cultural events provide even more incentive for people to come to live in this community. All of these positive aspects identified above are reasons why the community has grown to over 130,000 residents.

Site B

Site B is part of a school district that services portions of several suburbs. There are two other schools in the district. The primary building houses a preschool, kindergarten, and first grade, and a third building is occupied by grades two, three, and four. In total, the enrollment of the three schools is 638. There are 52 teachers in the district, all Caucasian. The residents of the community come from many cultural backgrounds, but the area make-up is predominantly Caucasian. The median family income is \$46,184 (U.S. Census Bureau, 2000). Many new homes have been built in the past few years. The average value of residential homes in the community is currently \$260,275.

The local police and fire departments provide drug and safety programs for the middle school. The programs are scheduled into the school year, and policemen and firefighters conduct organized presentations, interacting with students. The local Young Women's Christian Association (YWCA) offers workshops on pertinent topics for middle school students.

Since the school district services areas in many suburbs, students have access to four excellent public libraries and numerous park facilities. The park districts offer programs for all ages, including a number of physical fitness classes and clinics, youth activities, and field trips. A variety of concerts take place during the summer months in a park on a lake located within the school district. Also, there is one golf course located in

the area. A large, upscale shopping mall, many fine restaurants, and other businesses can be found in the area, as well. It is a safe and progressive community, with much to offer families residing in the area.

National Context of the Problem

The most recent National Association of Environment Professionals (NAEP) assessment of student knowledge of U. S. History indicates that students have difficulty analyzing and interpreting historical text (Williams, Lazer, Reese, & Carr, 1994). Teachers in grades three through seven participated in a survey pertaining to comprehension of information found in social studies textbooks. Of the educators questioned, 91% had problems with the social studies books. Nine teachers were concerned about "readability", especially for students with reading related disabilities. Difficulty of vocabulary words and too many new words being introduced were some of their complaints. Students were overwhelmed and experienced problems with comprehension and retention of the information in the content area (Bean & Zigmond, 1994).

Content area reading can be defined as students, using their own prior knowledge, interacting with text to interpret and constructing meaning before, during, and after reading by using their prior knowledge. (Lenz & Hughes, 1990). Content area reading in science, history, and other social studies areas implies that students can read and comprehend expository text, including cause/effect, compare/contrast, and facts/concepts in a way that demonstrates their knowledge of subject matter through various ways of assessment (Bryant, Pedrotty, Ugel, Thompson, & Hamff, 1999).

The Council for Educational Development and Research (CEDaR) has developed a list showing skills students should master by specific grade levels during the educational process. From grades four through six, context reading skills should develop, enabling students to create mental pictures to increase text comprehension, draw conclusion and make inferences based on material read and implied. They should willingly reread and discuss with others material that they do not fully comprehend to create better understanding. In addition, students should be able to make and revise predictions. Finally, they should be able to make connections between new information read and that previously learned, as well as to their own life experiences (Hopkins, 1997).

The ability to read is essential to succeed socially and economically in our society. Likewise, in order to achieve academic success, students must be able to read (National Research Council, 1998). A reader has to be able to easily and fluently decipher print, so meaning from printed text can occur (Moats, 1998). Comprehension capabilities shift from "learning-to-read" to "using-reading-to-learn" content area curriculum with narrative and expository texts (Bender, 1999). Students need to tackle multi-syllabic words (Lenz & Hughes, 1990) and challenging vocabulary found in content area subject matter (Nagy, 1998).

Currently, the mastery of comprehension of content area information is being reassessed in many parts of the country. Complex content and the lack of experimental background make it difficult for young students to successfully comprehend the social studies text. Children who have not been exposed to different places or cultures find it difficult to relate to content in social studies. The heavy information load makes

comprehension difficult. Also, hard to pronounce names of cities, countries, and people contribute to its complexity. Frequent references to long periods of time or large distances add to the already challenging material. These are obvious reasons for the lack of comprehension of the social studies text. (Hoge, 2000).

Although teachers in many content areas are not teaching reading, they should be familiar with reading strategies that will help students understand and retain information found in their texts. The opportunity to strengthen reading skills as well as interpersonal skills in social studies classes can play an important part in the overall success of new students and the development of critical thinking (Graves & Avery, 1997). The use of techniques is essential to ensure that students develop thinking skills, significant in understanding and remembering important information. In Chapter 2 evidence of concern in comprehension of content area text will be addressed.

CHAPTER 2

PROBLEM DOCUMENTATION

Problem Evidence

In order to investigate the improvement of reading comprehension through the method of cooperative learning, several instruments were developed by our team. They include student surveys, parent surveys, records of standardized test scores, and teacher observation. Student and parent surveys were given in September, 2002 and reviewed for problem perception.

The parent letter (Appendix A) was sent home to obtain permission for student participation in the research study. In addition, a parent survey (Appendix B) was completed in late September, 2002 to better understand parent perceptions of their child's reading needs. The student survey (Appendix C) was administered in the middle of September, 2002. Students at Site A and B were given ample time to complete the survey. The survey was used to determine students' attitudes toward reading. The student survey will be given again upon completion of the study.

Parent Opinion Reading Survey, September, 2002

The parent survey (Appendix B) was sent home to be completed in a timely manner. Of the 45 parent surveys sent home, 85% were returned. The parent surveys were used to gain understanding of their views regarding the importance of vocabulary in reading comprehension, their child's reading strengths, and what is needed to enable their child to become a better reader.

All parents agreed that reading comprehension is vital in producing success in all subject areas, and mastering vocabulary plays an important part. Many commented that understanding the meanings of words while reading helps children form pictures in their minds. Without vocabulary understanding, children may not be able to concentrate on the material they are trying to master and may lose their train of thought.

Over and over again parents commented that daily reading at home helps improve reading ability and comprehension. While reading materials that interest them, the children tend to show more enthusiasm toward reading outside of the classroom and attempt to pronounce more difficult words. Some parents also observed that their child used context clues to understand meanings of passages. Finally, phonics and decoding were thought to be key components in the success of early reading development. Several parents commented that they had a difficult time getting their children to read at home strictly for pleasure.

Student Survey

Students were asked to complete a reading opinion survey (Appendix C) by writing agree or disagree beside 14 statements. The survey was designed to determine how students felt about reading. Results indicated many inconsistencies. For instance, almost all of the students indicated that they think there is much to be gained from reading, yet most think books are sometimes boring. One-third of the children felt that books are too long and dull, but most thought that reading is a good way to spend spare time, there were many books they hope to read, and books made good gifts. The inconsistencies in the responses may show a poor attitude toward

reading for many students in both targeted classes.

Table 1

Student Reading Opinion Survey, September, 2002

Statements	Agree	Disagree
1. Reading is for learning but NOT for enjoyment.	4	41
2. There is nothing to be gained from reading books.	1	44
3. Books are sometimes a bore.	38	7
4. Reading is a good way to spend spare time.	38	7
5. Sharing books in class is a waste of time.	9	36
6. Reading is only for students seeking good grades.	2	43
7. Books aren't usually good enough to finish.	5	40
8. Reading is rewarding to me.	30	15
9. Reading becomes boring after about an hour.	13	22
10. Most books are too long and dull.	15	30
11. There should be more time for free reading during the school day.	35	10
12. There are many books that I hope to read.	39	6
13. Reading is something I do not enjoy doing.	16	29
14. Books make good presents.	32	13

Teacher Observation

After observing student behavior during reading, teachers at Sites A and B expressed concerns with comprehension skills. Though many students read fluently, they do not seem to understand or remember text meaning with great skill. Evidence is shown by observing and evaluating students' participation during class discussions and examining scores on comprehension tests. Both teachers feel that there is a need for an intervention to improve reading comprehension.

Analysis of Standardized Test Scores

The Illinois Standard Achievement Test (ISAT) is administered each spring to students at Sites A and B. Students' results are categorized into four comparison groups to show performance relative to the Illinois Learning Standards. The four performance levels for the learning areas tested are: exceeds standards, meets standards, below standards, and academic warning.

In the area of Reading, 15% of the students from Site A did not meet the state standards, as measured on the 2002 ISAT. The percentage of students tested not meeting standards increased by 7% from the previous year. Of the students who will participate in the intervention, 21% did not meet the standards.

Of the students tested at Site B, 29% did not meet the state standards in Reading as the 2002 ISAT. In the area of Social Studies, a subject area where reading skills are of vital importance, 34% did not meet the state standards. While there was a slight improvement over scores from the previous year in both Reading and Social Studies (Illinois State Achievement Test Performance Profile, 2002), the number of students

not meeting state standards is still alarmingly high.

After reviewing the test scores, both teachers agreed that the results accurately reflect what is observed in the classroom and they indicated limited mastery. An intervention to improve reading comprehension may be one useful measure to increase the number of students who meet the state standards in the future.

In summary, the use of data sources including student and parent surveys, teacher observation, and standardized test scores demonstrated a need for techniques for mastery of vocabulary to improve reading comprehension.

Probable Causes

Research shows that there are several underlying causes for poor reading comprehension. Among the reasons are the complex process of learning to read, the type of instruction, method for decoding, prior knowledge, a diverse population, and development of vocabulary.

Learning to read and understand the printed word is a complex process. The process has been compared to building a car. Both consist of a specific system, both must be maintained, and most importantly, both must be in continuous use. The ultimate goal of reading is making meaning—we require a vehicle to be in good order to help us reach that goal (Leipzig, 2001).

As documented in the Report of the National Research Council, the type of classroom instruction is another important aspect in the development of good readers (Snow, Burns, and Griffin, 1998). A balanced reading program must integrate phonics, instruction focusing on decoding, and whole language instruction. Students cannot

understand text if they cannot read.

Phoneme awareness, according to Gough, Juel, and Griffith (1992), is a demonstration of knowledge of the structure of sounds in words without actually looking at the words. Phonics links sounds with letters. Both aspects of learning to read depend on one another. Without both, children do not understand that written spellings systematically represent spoken sounds.

Fluency and automatic word recognition are also required to master reading comprehension. Since attention span and memory capacity are limited, children who lack the skills to decode words, cannot retain what they read or relate information from prior knowledge (Lyon, 1998).

According to Anderson and Pearson (1984), readers with a rich prior knowledge background in a reading topic, often understand better than their classmates with low prior knowledge. In fact, the importance of prior knowledge can be traced back to early child development. Reading aloud with children is the single most important activity for building knowledge and skills they will need for learning to read (Leipzig, 2001).

For learning to occur, new information must accompany what the learner already knows (Rumelhart, 1980). "It appears that providing students with strategies to activate their prior knowledge base or to build a base if one does not exist is supported by current research. It is our contention that this is one way teachers can have a positive influence on comprehension in their classrooms." (Christen & Murphy, 1991, p. 2)

Another probable cause for comprehension difficulty is the changing population in the United States. "Children raised in poverty, those with limited proficiency in English,

those from homes where the parents' reading levels and practices are low, and those with speech, language, and hearing handicaps are at an increased risk of reading failure." (Lyon, 1998, p. 4)

Since teaching is a collaborative effort in communities across the country, including parents, teachers, and influential community members, an effort must be made to increase reading ability for lower socioeconomic children. While 20% of the elementary students in the United States struggle with reading, as many as 70% of African American, Hispanic, and limited-English speaking children fail to meet our nation's reading standards (Leipzig, 2001).

Finally, one of the main causes for low reading comprehension is lack of mastery in the area of vocabulary. In research by The National Reading Panel, it has been found that vocabulary instruction and reading comprehension go hand-in-hand (Santa, 2002).

Most words are learned through listening, speaking, reading, and writing. By the time an average child reaches the age of six years, their vocabulary should include thousands of words. The difference between knowing, understanding, and using words is an vital part of concept development de Villiers & de Villiers, 1978).

Schools play a critical role in expanding a child's vocabulary through written language. However, "It is not the enlargement of vocabulary itself that is of value but the enlargement of the mind to new ideas." (Petty, Curtis, Herold, & Stoll, 1968, p. 2)

"A rich vocabulary unlocks a wealth of knowledge that opens up worlds to its owner. A large portion of vocabulary is learned in context, but research concludes that if active instruction is not undertaken, students will be robbed." (Bryant, Pedrotty, Ugel,

Thompson, & Hamff, 1999, p. 293).

"Understanding this vocabulary must be included across the curriculum." (Ediger, 1999, p. 7). Chapter 3 focuses on possible interventions to increase comprehension and vocabulary.

CHAPTER 3

THE SOLUTION STRATEGY

Literature Review

A review of literature in the area of reading comprehension supports guided reading, think alouds, reciprocal teaching, and cooperative learning as effective classroom instructional techniques.

With guided reading, instructors and students share the responsibility of understanding what is being read. There are several ways to accomplish the goal of successful comprehension using this technique. An example is to work with a group of students reading material at their own instructional level. The teacher guides the students through the process using several types of questions that provoke higher-level thinking skills.

Literal, inferential, and critical questions are three examples used to guide text comprehension. Literal questions ask students to find explicit meaning. Inferential questions ask students to find answers that are possible and probable, involving higher level thinking skills. Critical questions ask students to form opinions and judgments. They are thought of as reading beyond the lines, expanding student's thinking. Critical questions often spark exciting classroom discussions (Burns, 1999).

Guided reading is helpful for students who are fluent readers but lack comprehension skills. It forces them to think about what they have read. The techniques also helps students who have difficulty staying focused for a long period of time (Burns, 1999). "It encourages students to read beyond the superficial and to assume control for considering and assimilating what they read." (Mooney, 1995, p. 76)

Another effective method for improving comprehension is the use of think aloud. Think aloud can be defined as students orally voicing their thoughts as they read. "Think aloud has been shown to improve students' comprehension both when students themselves engage in the practice during reading and also when teachers routinely think aloud while reading to students." (Duke & Pearson, 2002, p. 5)

Teacher think aloud is a form of teacher modeling, where an instructor demonstrates effective comprehension strategies. For example, an introduction of new material is read to students, and they are instructed to visualize and predict what will happen next. The teacher also shares a prediction of what will happen. Think alouds are also used to demonstrate ways that good readers process text, including clarifying, using prior knowledge, building new connections, summarizing, and synthesizing.

There are eight "verbal cues" used in think alouds to increase comprehension. They include picturing events in one's mind, pausing to reread, connecting to authors, stories, and self, and asking questions to self about the text. Other examples are looking at story structure, studying author's style, acting out the story, and trying to "feel" what is happening. As a teacher shares a book, he or she stops at relevant parts and uses these "cues" to guide comprehension.

Think alouds give insight into a student's thoughts as he or she processes and interprets text. This allows the teacher to draw conclusions as to why comprehension becomes difficult or doesn't occur (Coiro, 2001). According to Duke and Pearson's study (as cited in Meichebaum & Asnarow, 1979) there have been many theories as to why think aloud is a successful technique for improving comprehension. One theory is that it decreases student impulses to jump to conclusions about text meaning without fully comprehending what they read. Think alouds may lead to more thoughtful strategic reading.

A third reading comprehension technique involves interactive dialogue between students and teacher. The process is called reciprocal teaching. Its goal is to help students learn how effective readers process information.

A typical session using the reciprocal teaching method begins with a review of the previous lesson taught. Students make predictions about the text, then read the new material independently. Next a student is chosen to act as the teacher. The student chosen asks questions, summarizes the material read, asks for clarification, and makes predictions about the next paragraph. During the process, the teacher prompts the student-teacher and provides feedback (Duke & Pearson, 2002).

Summarizing allows students to identify important information in the text. Students learn to generate questions at different levels using the text to monitor their own comprehension. Clarifying helps students who struggle with new vocabulary and unfamiliar concepts. Background knowledge is called upon, reading purpose is given, and connections are made between previous knowledge and new information when

predicting occurs (Coiro, 2000).

Several studies have investigated the effectiveness of reciprocal teaching. They conclude that it improves comprehension of written material. Evidence supporting the findings were from experimenter-developed comprehension tests and standardized comprehension tests (Rosenshine & Meister, 1994). Palinscar and Brown (1984) found that students who received reciprocal teaching instruction over twenty school days improved in written work and dialogue. Students were also able to summarize independently and monitor their own comprehension.

Finally, peer instruction and interaction leads to a increase in comprehension (Santa, 2002). This teaching technique is called cooperative learning. Evidence shows that there is a greater understanding and overall comprehension development when children work together sharing their perceptions of text (Barnes, Morrow & Sharkey, 1993; Shankin & Rhodes, 1989). Research comparing student to student interaction has proven that children learn more effectively in a cooperative setting. A meta-analysis of 122 research studies from 1924 to 1980 comparing cooperative, competitive, and individualistic learning seems to indicate that cooperation is the most successful technique in several subject areas (Johnson & Johnson, 1988, 1997). Cooperative learning can be defined as students working together toward a common goal. They are rewarded for individual and collaborative efforts (Slavin, Stevens, & Madden, 1988).

The more students work in cooperative groups, the more they understand, retain, and feel better about themselves and their peers. Though it isn't the easiest way to Teach, working in a cooperative environment encourages student responsibility for

learning. A responsible educator must develop a positive learning structure and a solid foundation for the growth of their students. Studies showing the successful use of this learning technique have professors incorporating cooperative learning into college level courses (Johnson, 1992).

"Cooperative learning increases student motivation by provided peer support. As part of a learning team, students can achieve success by working well with others. Students are also encouraged to learn material in greater depth than they might otherwise have done, and to think of creative ways to convince the teacher that they have mastered the required material." (Glasser, 1986, p. 1)

Finally, a study done by Johnson and Johnson (1981), showed that cooperative learning promotes greater cross-ethnic interaction and the acceptance of mainstreamed academically handicapped students.

Project Objectives and Processes

As a result of using cooperative learning, during the period of September, 2002 to December 2002, students in the targeted fourth and seventh grade classes will improve their reading comprehension through vocabulary mastery. Scores will improve by 10% as determined by the comparison of all pretests and posttests. Students will complete a reading opinion survey prior to the project implementation, vocabulary pretests, cooperative learning vocabulary games, and vocabulary posttests. Upon completion of the project, students will evaluate the process.

In order to successfully accomplish the objective, the following processes are necessary:

1. Develop a parent information letter.
2. Prepare a parent survey about student reading behaviors.
3. Identify key vocabulary words, essential in designated fourth and seventh grade novels.
4. Prepare a student reading opinion survey.
5. Design vocabulary pretests and posttests.
6. Invent cooperative learning vocabulary games that rotate students to different groups.
7. Prepare a project evaluate survey.

PROJECT ACTION PLAN

WHEN	STRATEGY	PARTICIPANTS	WHY
Week 1	<ul style="list-style-type: none"> ❖ Parent Consent Letter Completed ❖ Parent Opinion Survey Completed ❖ Student Consent Letter Completed ❖ Administer Student Reading Opinion Survey 	<ul style="list-style-type: none"> ❖ Parents in Sites A & B ❖ Parents in Sites A & B ❖ Students in Site B only ❖ Students in Sites A & B 	<ul style="list-style-type: none"> ❖ Student Participation Approval ❖ To Determine Validity ❖ Student Participation Approval ❖ To Determine Validity
Week 2	<ul style="list-style-type: none"> ❖ Administer Vocabulary Pretest One (Novel 1) ❖ Play Vocabulary Matching Game One ❖ Observation of Student Behavior Using Checklist ❖ Administer Vocabulary Posttest One 	<ul style="list-style-type: none"> ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Grades 4 & 7 Teachers in Sites A & B ❖ Students in Sites A & B 	<ul style="list-style-type: none"> ❖ To Determine Background Knowledge ❖ To Increase Use and Comprehension of Vocabulary ❖ To Assess Students' Cooperation ❖ To Determine Growth & Achievement
Week 3	<ul style="list-style-type: none"> ❖ Administer Vocabulary Pretest Two ❖ Play Vocabulary Matching Game Two ❖ Administer Vocabulary Posttest Two ❖ Administer Vocabulary Pretest Three ❖ Play Vocabulary Matching Game Three 	<ul style="list-style-type: none"> ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B 	<ul style="list-style-type: none"> ❖ To Determine Background Knowledge ❖ To Increase Use and Comprehension of Vocabulary ❖ To Determine Growth & Achievement ❖ To Determine Background Knowledge ❖ To Increase Use and Comprehension of Vocabulary ❖ To Assess Students' Cooperation
Week 4	<ul style="list-style-type: none"> ❖ Observation of Student Behavior Using Checklist ❖ Administer Vocabulary Posttest Three ❖ Administer Vocabulary Pretest Four ❖ Play Vocabulary Matching Game Four ❖ Administer Vocabulary Posttest Four ❖ Administer Vocabulary Pretest Five ❖ Play Vocabulary Matching Game Five 	<ul style="list-style-type: none"> ❖ Grades 4 & 7 Teachers in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B 	<ul style="list-style-type: none"> ❖ To Determine Growth & Achievement ❖ To Determine Background Knowledge ❖ To Increase Use and Comprehension of Vocabulary ❖ To Determine Growth & Achievement ❖ To Determine Background Knowledge ❖ To Increase Use and Comprehension of Vocabulary ❖ To Assess Students' Cooperation
Week 5	<ul style="list-style-type: none"> ❖ Observation of Student Behavior Using Checklist ❖ Administer Vocabulary Posttest Five ❖ Administer Vocabulary Pretest Six ❖ Play Vocabulary Matching Game Six ❖ Administer Vocabulary Posttest Six ❖ Administer Vocabulary Pretest Seven ❖ Play Vocabulary Matching Game Seven 	<ul style="list-style-type: none"> ❖ Grades 4 & 7 Teachers in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B 	<ul style="list-style-type: none"> ❖ To Determine Growth & Achievement ❖ To Determine Background Knowledge ❖ To Increase Use and Comprehension of Vocabulary ❖ To Determine Growth & Achievement ❖ To Determine Background Knowledge ❖ To Increase Use and Comprehension of Vocabulary ❖ To Assess Students' Cooperation
Week 6	<ul style="list-style-type: none"> ❖ Observation of Student Behavior Using Checklist ❖ Administer Vocabulary Posttest Six ❖ Administer Vocabulary Pretest Seven ❖ Play Vocabulary Matching Game Seven ❖ Administer Vocabulary Posttest Seven ❖ Administer Vocabulary Pretest Eight ❖ Play Vocabulary Matching Game Eight 	<ul style="list-style-type: none"> ❖ Grades 4 & 7 Teachers in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B 	<ul style="list-style-type: none"> ❖ To Determine Growth & Achievement ❖ To Determine Background Knowledge ❖ To Increase Use and Comprehension of Vocabulary ❖ To Determine Growth & Achievement ❖ To Determine Background Knowledge ❖ To Increase Use and Comprehension of Vocabulary ❖ To Assess Students' Cooperation
Week 7	<ul style="list-style-type: none"> ❖ Observation of Student Behavior Using Checklist ❖ Administer Vocabulary Posttest Seven ❖ Administer Vocabulary Pretest Eight ❖ Play Vocabulary Matching Game Eight ❖ Administer Vocabulary Posttest Eight ❖ Administer Vocabulary Pretest Nine ❖ Play Vocabulary Matching Game Nine 	<ul style="list-style-type: none"> ❖ Grades 4 & 7 Teachers in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B ❖ Students in Sites A & B 	<ul style="list-style-type: none"> ❖ To Determine Growth & Achievement ❖ To Determine Background Knowledge ❖ To Increase Use and Comprehension of Vocabulary ❖ To Determine Growth & Achievement ❖ To Determine Background Knowledge ❖ To Increase Use and Comprehension of Vocabulary ❖ To Assess Students' Cooperation
Weeks 8 - 10	<ul style="list-style-type: none"> ❖ Repeat Strategies from Weeks 2, 3, & 4 (Novel 2) ❖ Repeat Strategies from Week 5 	<ul style="list-style-type: none"> ❖ Students in Site A ❖ Students & Teachers in Sites A & B ❖ Students & Teacher in Site B 	<ul style="list-style-type: none"> ❖ To Determine Growth & Achievement ❖ To Determine Background Knowledge ❖ To Increase Use and Comprehension of Vocabulary ❖ To Determine Growth & Achievement ❖ To Determine Background Knowledge ❖ To Increase Use and Comprehension of Vocabulary ❖ To Assess Students' Cooperation
Week 11	<ul style="list-style-type: none"> ❖ Repeat Strategies from Week 5 	<ul style="list-style-type: none"> ❖ Students & Teacher in Site B 	<ul style="list-style-type: none"> ❖ To Determine Growth & Achievement
Week 12	<ul style="list-style-type: none"> ❖ Complete Student Project Evaluation Survey ❖ Complete Parent Opinion Survey 	<ul style="list-style-type: none"> ❖ Students in Sites A & B ❖ Parents in Sites A & B 	<ul style="list-style-type: none"> ❖ To Determine Validity ❖ To Determine Validity

Methods of Assessment

In order to assess the effectiveness of the intervention, the following tools and procedures will be used:

1. **Parent Surveys:** A parent survey will be distributed near the beginning of the school year. It will help identify parents' perceptions regarding students' reading behavior. A similar survey will be completed at the end of the project to help identify student progress. Results will be assessed and recorded.
2. **Student Surveys:** A student survey will be completed in class before beginning the project. The survey will establish student views toward reading. Another survey will be taken by students upon completion of the project to assess students views and attitudes toward the reading process using cooperative learning lessons. Results will be assessed and recorded.
3. **Pretests/Posttests:** A pretest will be administered as an introduction to each vocabulary unit. Upon completion of a cooperative learning lesson, a posttest will be administered. The two tests will be compared to chart growth.

Chapter four will address the project results. A description of the interventions, presentation and analysis of the results, and recommendations for change will be included.

CHAPTER 4

PROJECT RESULTS

Historical Description of the Intervention

The objective of this action research project was to increase vocabulary and comprehension in content area text. The implementation of cooperative learning lessons and vocabulary memory games were selected to affect ideal changes.

Cooperative learning was the technique used to improve comprehension. Students were grouped in a variety of random selections. Some examples include alphabetical, order of birth numbering off, and color codes, sequence of birthdays, order of height, and random computer grouping. New groups were established each week during the implementation of the intervention. This began during the first week of October, 2002 and continued until the end of November, 2002.

During the first week of the school year, a parent letter (Appendix A) was sent home seeking permission for the targeted students to participate in the action research project. Along with the parent consent letters, the researchers had the targeted students take home a parent opinion survey (Appendix B) questioning how they perceived their child's reading needs. The targeted students were asked to take the permission letters home, have their parents read and sign them, and bring them back within five school days. A

parent survey was sent home at the same time to be completed and returned with the consent letter. After a reminder from the researchers, all 45 letters were returned with permission granted to participate in the action research project. Ten school days from the initial distribution, 85% of the parent surveys had been returned.

At the same time that the parents were being surveyed, the researchers administered an in class student reading opinion survey (Appendix C). All students in both classes were present the day that the survey was administered. Results of the student survey were reported in Table 1.

Prior to the intervention, the researchers identified key vocabulary words appropriate for the grade levels, and created ten vocabulary games that the targeted student from each class could use in cooperative learning groups. Researchers explained to students that they would be keeping a journal to monitor and assess of the intervention.

The strategic intervention used to increase comprehension began with the introduction of new vocabulary from grade appropriate novels. Each week the students began by completing a pretest matching new vocabulary words with their definitions. The researchers administered the vocabulary pretests to determine the student's background knowledge. A sample pretest can be found in Appendix D. Next, the vocabulary was taught to the whole class using a direct instruction model. In the initial project action plan the researchers did not include this step, but prior implementation, decided that it was necessary. On the third day, students were divided into cooperative learning groups to play a "Memory" matching game using cards with the new vocabulary words and cards with the definitions. All cards were placed face down, with the

vocabulary words grouped separately from the definition cards. Students chose one card from each group. If the cards matched, students continued playing. If the cards did not match, they were placed face down in the same spots, and the next student proceeded to take a turn. The game was complete when all matches were made. The student with the most correct matches was the winner. A reward was given to the winner in each group. While students were participating in the cooperative games, the researchers moved around the classroom observing student behavior. Student behavior was recorded on an observation checklist (Appendix E). Finally, on the last day of the intervention, students completed a posttest. A sample can be found in Appendix F. The posttest was a duplicate of the pretest and used for direct comparison.

The process was duplicated each week during the intervention using new word lists. Upon completion of the unit, students completed a survey (Appendix G) assessing their views toward the reading process and the use of cooperative learning lessons to master vocabulary. The post-survey consisted of four agree/disagree questions and three questions where students gave their opinions on their favorite part of the project, what they would change, and if they would like to continue working in cooperative groups to learn new vocabulary words.

Most of the students surveyed agreed that the intervention was a helpful way for them to learn, understand, and remember new words and that the matching games were fun. Many agreed that their favorite part of the project was using a variety of ways to divide them into groups. Several children stated that working in small groups was fun. When asked what they would change about the project, a few students said that

although they liked the memory game, they would like to play different types of games while mastering vocabulary. One suggestion was to play Jeopardy. Most of the children agreed that they would like to continue working in cooperative groups to learn vocabulary.

Table 2

Student Project Evaluation Surveys, November, 2002

Statements	Agree	Disagree
1. Playing a vocabulary matching game made it easier for me to remember new words.	39	6
2. Mastering vocabulary by playing the matching game was fun for me.	42	3
3. I enjoyed working in cooperative groups with my classmates.	42	3
4. I believe that playing cooperative learning vocabulary games has helped me to learn and understand new words in our novels.	38	7

Parent Survey

Upon completion of the action research project, parents were asked to make comments using a post opinion survey (Appendix H). The researchers were interested in parents' views of the intervention as means of improving student reading and comprehension. Of the 45 surveys sent home with participating students, 39 were completed and returned. The surveys were then compared to those completed prior to the implementation of the action research project. There were no significant

differences in the responses, however, many parents expressed positive comments about cooperative learning as a teaching method and the positive increase in test scores as a result of the project.

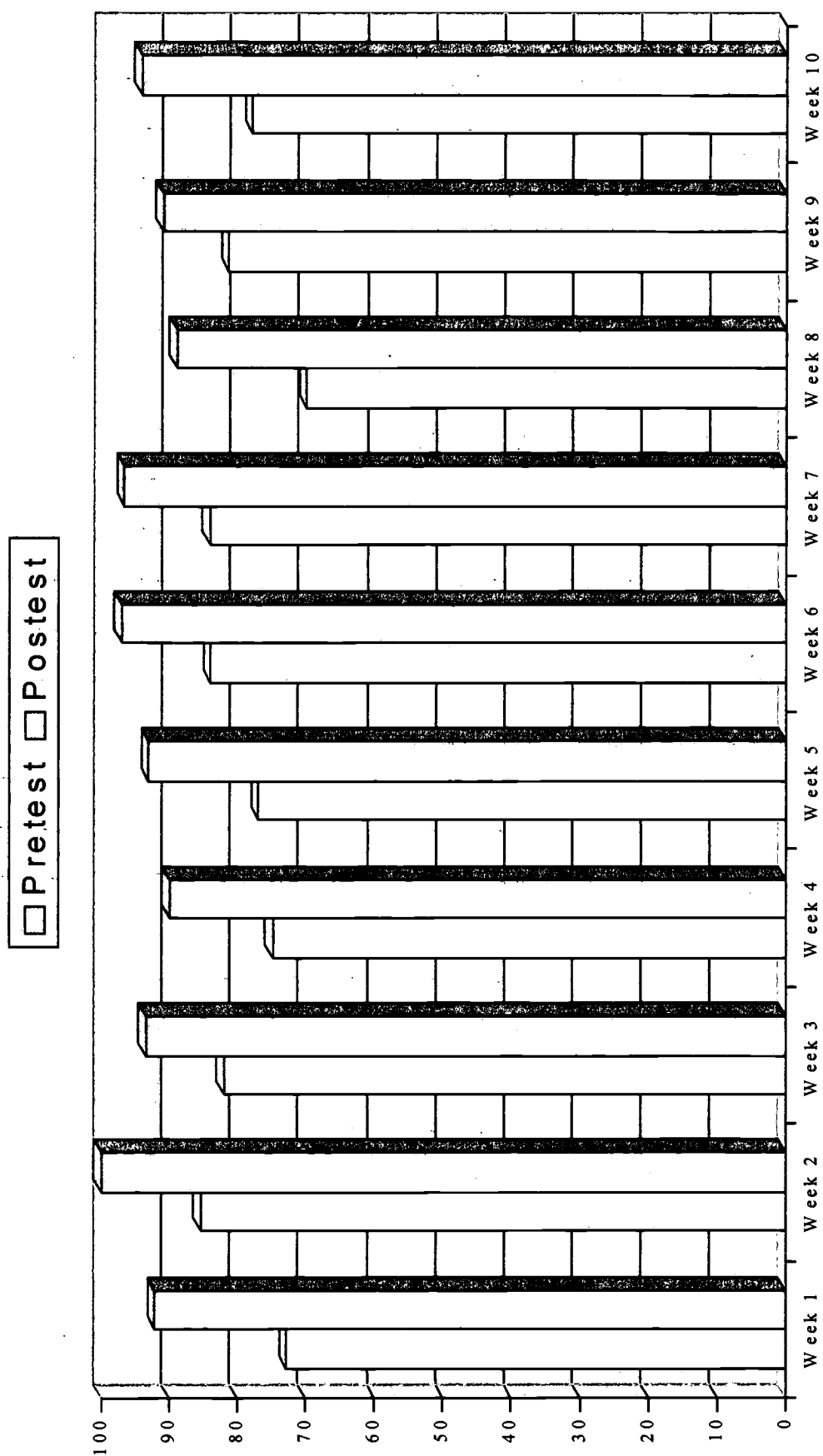


Figure 1. Vocabulary pretest and posttest averages for Site A.

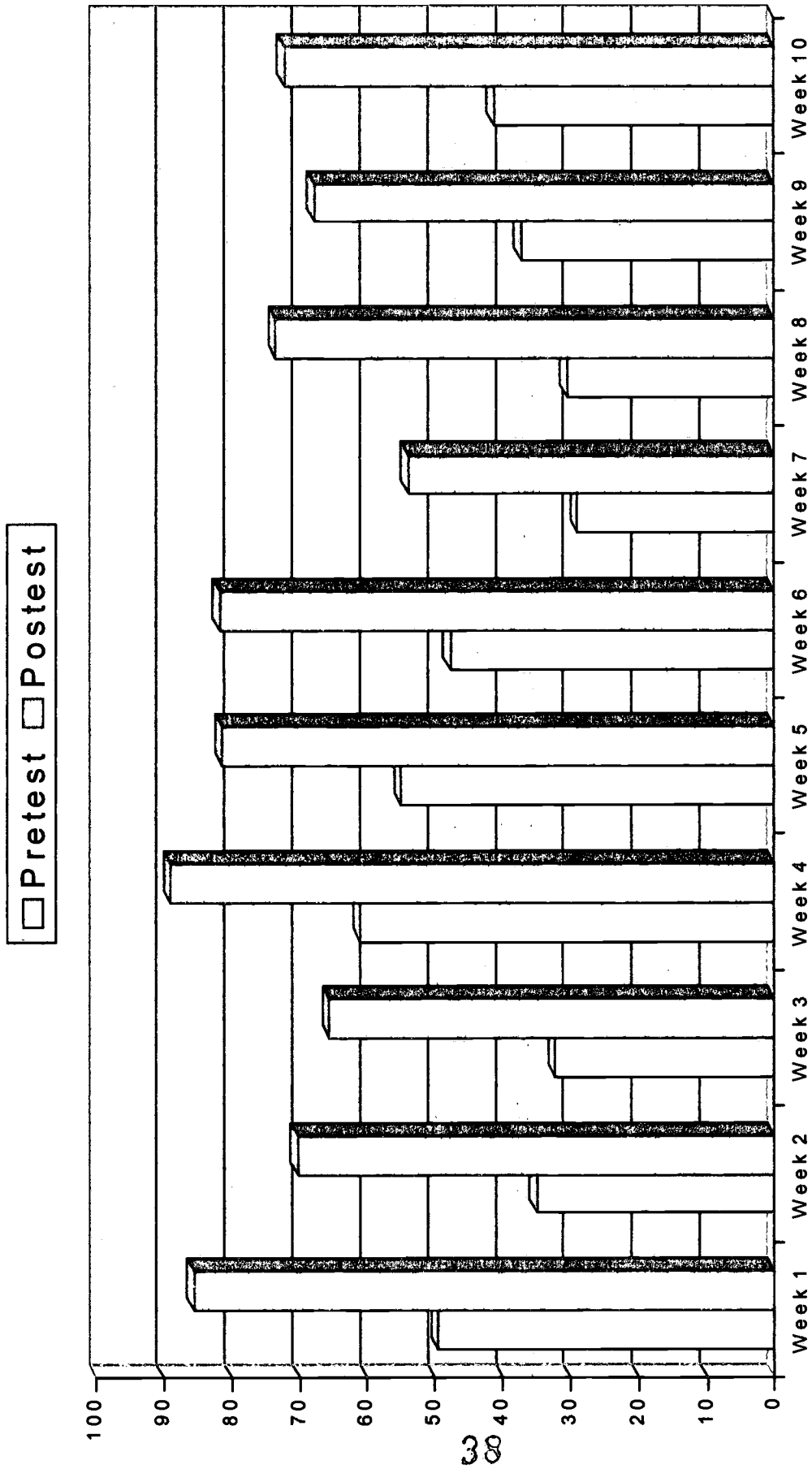


Figure 2. Vocabulary pretest and posttest averages for Site B.

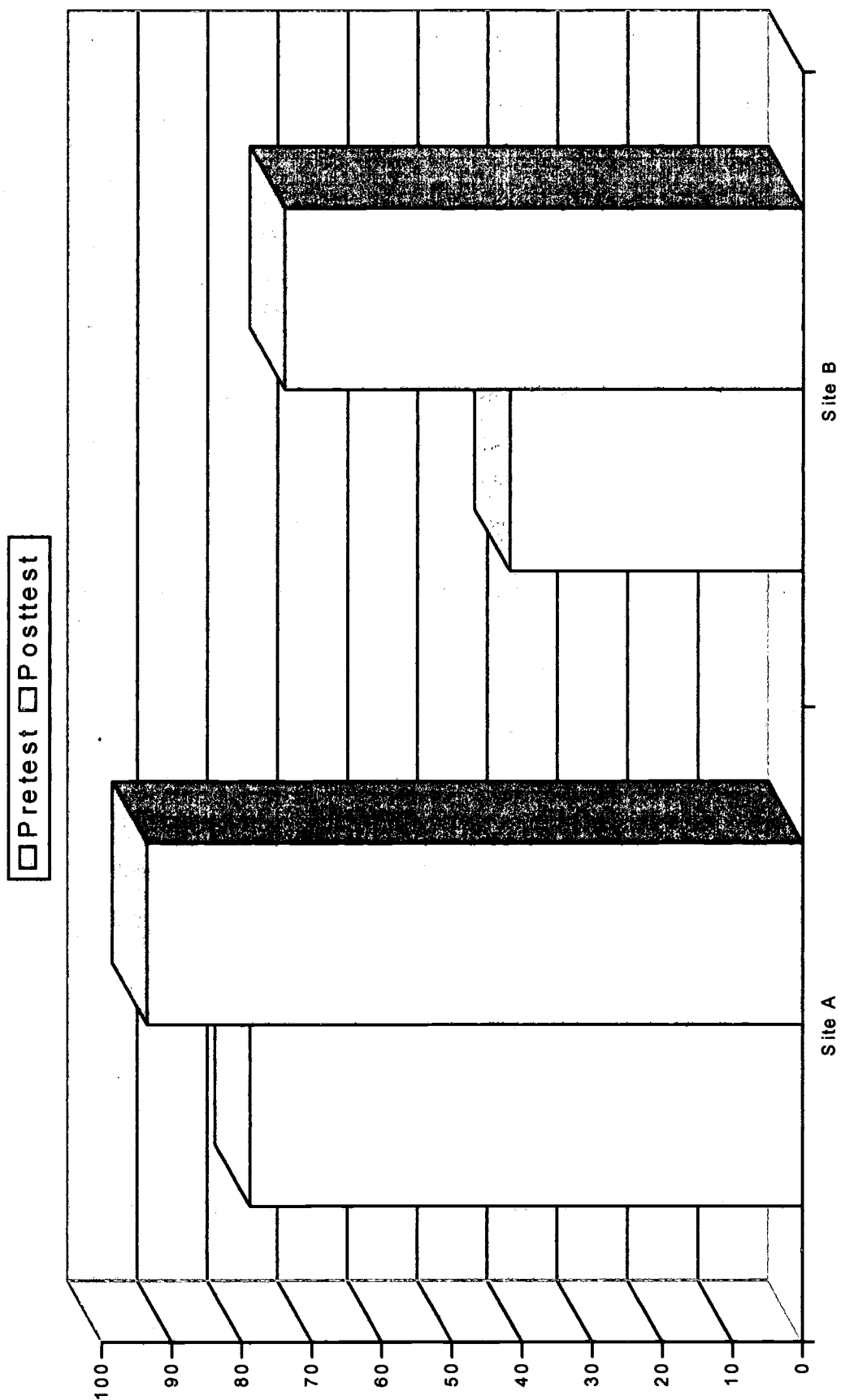


Figure 3. Vocabulary pretest and posttest overall averages for Sites A and B.

Presentation and Analysis of Results

Throughout the nine week project, the researchers gathered data to assess the effectiveness of cooperative learning to increase student comprehension. The data was compiled, averaged, and analyzed at both Site A and Site B. The researchers compared pretest to posttest scores to identify increases in individual and class mastery in understanding of material. Weekly data can be found in Figure 1.

While comparing and analyzing data from the ten week intervention, researchers noted significantly high pretest scores in the fourth grade at Site A. The lowest cumulative pretest score was 70% during week eight, and the highest score of 85% was from week two. These pretest results showed that the students participating in the action research project knew many of the vocabulary words and their meanings prior to the intervention. There was still, however, room for anticipated 10% improvement on the posttest.

In contrast, at Site B the seventh grade action research participants scored much lower on the pretests, ranging from 29% in week seven to 54% in week five. This left much room for improvement by utilizing the intervention to master and understand the new vocabulary before completing the posttests.

Upon assessment of the results, researchers noted significantly higher scores on posttests. Success in vocabulary mastery was attributed to the students' enjoyment of the cooperative learning format. Furthermore, both instructors observed the students working well together in their cooperative learning groups. Expectations were to see an increase of 10% from pretest to posttest. Although some individual students' scores

did not increase by at least 10%, cumulative scores at Site A increased from 79% on the pretests to 94% on the posttests, a 15% gain. Scores at Site B increased from 42% on the pretests to 74% on the posttests, an impressive 22% gain.

Conclusions and Recommendations

Based on the presentation and analysis of data on cooperative learning used as a technique for mastering vocabulary skills to increase comprehension, student success was observed in mastering the meaning and understanding of new words. However, the difficulty of vocabulary words contributed to lower overall scores on some tests. For example, the vocabulary list used during the third week of the intervention at Site B contained words that, in the opinion of the researchers, were more difficult than those words on other lists for the age level of the students. Overall, using this cooperative learning intervention proved to be a successful and effective way to increase vocabulary mastery. Researchers believe this to be the case after comparing vocabulary test scores from the intervention to vocabulary test scores from previously taught novels.

In addition, instructors observed an improvement in student comprehension of text while reading the assigned novels. Researchers at both sites noted a decrease in the number of questions asked by students referring to vocabulary words studied. Students also made positive references to recognizing vocabulary as they read. Parents were satisfied with the use of an alternative learning method. Both instructors found this intervention to be an overwhelming success, due to the enthusiasm shown by participating students, their parents, and the increase in test scores.

Using cooperative learning as a teaching method proved to be a valuable way for students to learn new material while encouraging peer interaction and success. The strategies used motivated students to stay on task and accomplish the goal of learning new vocabulary in relation to novel comprehension. Both instructors agreed that they would implement this teaching method again. The only modification needed to improve the process would have been to use fill in the blank sentence completion on the pretests and posttests instead of matching the vocabulary words with their definitions. This would give better evidence that students comprehended the meanings of the words in context.

Furthermore, both teachers agreed that this method could be incorporated into other subject areas. Their experience has been shared with colleagues from both locations with encouragement to incorporate cooperative learning into their lessons. In summary, the researchers recommend the method described above as an effective approach for increasing comprehension.

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Appendices

Appendix A
Parent Letter and Permission Form

September 2, 2002

St. Xavier University
Consent to Participate in a Research Study
Improving Reading Comprehension Through Cooperative Learning

Dear Parent or Guardian,

I am currently enrolled in a master's degree program at St. Xavier University. This program requires me to design and implement a project on an issue that directly affects my instruction. I have chosen to examine the improvement of reading comprehension in content areas.

The purpose of this project is to increase reading comprehension using cooperative learning methods. Hopefully your child will learn new ways to master vocabulary and strengthen reading skills.

I will be conducting my project from September 9 to November 22. The activities related to the project will take place during regular instructional delivery. The gathering of information for my project during these activities offers no risk of any kind to your child.

Your permission allows me to include you student in the reporting of information for my project. All information gathered will be kept completely confidential, and information included in this project report will be grouped so that no individual can be identified. The report will be used to share what I have learned as a result of this project with other professionals in the field of education.

Participation in this study is completely voluntary. You may choose to withdraw from the study at any time. If you choose not to participate, information gathered about your student will not be included in the report.

If you have any questions or would like further information about my project, please feel free to contact me at school.

If you agree to have your child participate in the project, please sign the attached statement and return it to me by Friday, September 6.

Sincerely,

Name

Appendix A continued
Parent Letter and Permission Form

St Xavier University
Consent to Participate in a Research Study
Improving Reading Comprehension Through Cooperative Learning

I, _____, the parental guardian of the minor named below, acknowledge that the researcher has explained to me the purpose of this research, identified any risks involve, and offered to answer any questions I may have about the nature of my child's participation. I freely and voluntarily consent to my child's participation in this project. I understand all information gathered during this project will be completely confidential. I also understand that I may keep a copy of this consent form for my own information.

NAME OF MINOR _____

Signature of Parent/Legal Guardian

Date

Appendix B Parent Survey

Parent Survey

Your child will be reading a few pages to you out of the novel we are currently work in. Please listen to him/her read, and take a few minutes to inform me about your child's reading behaviors at home. By taking the time to fill this out, I will better understand your child and be able to meet his/her reading needs.

Do you think that mastering vocabulary is an important component in comprehending reading material, such as this novel?

What are your child's reading strengths?

What do you think your child needs to do to become an even better reader?

Please list any other comments or observations.

Appendix C Student Survey

Please read and think about each statement below. If you agree with the statement, write AGREE on the line. If you disagree with the statement, write DISAGREE on the line. This survey will help me better understand your reading comfort level.

1. Reading is for learning but NOT for enjoyment. _____
2. There is nothing to be gained from reading books. _____
3. Books are sometimes a bore. _____
4. Reading is a good way to spend spare time. _____
5. Sharing books in class is a waste of time. _____
6. Reading is only for students seeking good grades. _____
7. Books aren't usually good enough to finish. _____
8. Reading is rewarding to me. _____
9. Reading becomes boring after about an hour. _____
10. Most books are too long and dull. _____
11. There should be more time for free reading during the school day.

12. There are many books that I hope to read. _____
13. Reading is something I do not enjoy doing. _____
14. Books make good presents. _____

Appendix D Sample Pretest

The Outsiders by S. E. Hinton

Vocabulary Pretest One

Name _____ Date _____

Match the vocabulary word with the correct definition. Please print.

bleak	unfathomable	reckless	stocky	glare
clammy	sympathetic	incredulous	sagely	rarity
roguishly	nonchalantly	irresistibly	gingerly	stalk
disgrace	sarcastically	sensitive	incidentally	acquire

1. showing support of _____
2. having a confident and easy manner _____
3. to come into possession of, especially by one's own efforts _____
4. very cautiously; gently _____
5. not able to understand _____
6. wisely _____
7. acting in a playful, mischievous way _____
8. thick in build, solidly built, and usually short _____
9. speaking with bitter or stinging remarks _____
10. being damp, soft, sticky, and usually cool _____
11. not able to fight against or resist _____
12. happening by chance; casually _____
13. expressing lack of belief _____
14. careless; foolishly heading toward danger _____
15. follow _____
16. easily affected or hurt; delicate; tender _____
17. being out of favor; lose of respect; shame; dishonor _____
18. uncommon thing _____
19. dreary; cheerless _____
20. look fiercely or angrily _____

Score ____/20

Appendix E

Observation Checklist

COOPERATIVE LEARNING OBSERVATION CHECKLIST

[illegible]

KEY:
★ = Right on track
√ = Needs improvement

Appendix F Sample Posttest

The Outsiders by S. E. Hinton

Vocabulary Posttest One

Name _____ Date _____

Match the vocabulary word with the correct definition. Please print.

bleak	unfathomable	reckless	stocky	glare
clammy	sympathetic	incredulous	sagely	rarity
roguishly	nonchalantly	irresistibly	gingerly	stalk
disgrace	sarcastically	sensitive	incidentally	acquire

1. showing support of _____
2. having a confident and easy manner _____
3. to come into possession of, especially by one's own efforts _____
4. very cautiously; gently _____
5. not able to understand _____
6. wisely _____
7. acting in a playful, mischievous way _____
8. thick in build, solidly built, and usually short _____
9. speaking with bitter or stinging remarks _____
10. being damp, soft, sticky, and usually cool _____
11. not able to fight against or resist _____
12. happening by chance; casually _____
13. expressing lack of belief _____
14. careless; foolishly heading toward danger _____
15. follow _____
16. easily affected or hurt; delicate; tender _____
17. being out of favor; lose of respect; shame; dishonor _____
18. uncommon thing _____
19. dreary; cheerless _____
20. look fiercely or angrily _____

Score _____ %

Scale: 90-100 = A 80-89 = B 70-79 = C 60-69=D 59 & below = F

Appendix G Post Intervention Student Survey

Reading Opinion Survey (Post Intervention)

Please read and think about each question below. Take a few minutes to reflect on the project we have worked on over the past few months. Answer the questions by drawing from you reflections.

If you agree with the statement, Circle AGREE. If you disagree with the statement, circle DISAGREE.

1. Playing a vocabulary matching game made it easier for me to remember new words.

AGREE

DISAGREE

2. Mastering vocabulary by playing the matching game was fun for me.

AGREE

DISAGREE

3. I enjoyed working in cooperative groups with my classmates.

AGREE

DISAGREE

4. I believe that playing cooperative learning vocabulary games has helped me to learn and understand new words.

AGREE

DISAGREE

5. What was your favorite part of the reading project?

6. What would you change about the way you learned the new vocabulary?

7. Would you like to continue working in cooperative groups to learn new vocabulary words? Why or why not?

Appendix H Post Intervention Parent Survey

Parent Survey (Post Intervention)

Now that we have completed the reading project, your child will again be reading a few pages to you out of the novel we are currently working in. Please listen to him/her read and take a few minutes to inform me about your child's reading behaviors at home.

Do you think that mastering vocabulary is an important component in comprehending reading material, such as this novel?

What are your child's reading strengths?

What do you think your child needs to do to become an even better reader?

Do you notice any significant changes or improvements in your child's reading since completing the reading project using cooperative learning at school?

Please list any other comments or observations below.



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